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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,361	12/08/2003	David Claxton	UTSC:776US	2826
32425	7590	09/07/2005	EXAMINER	
FULBRIGHT & JAWORSKI L.L.P. 600 CONGRESS AVE. SUITE 2400 AUSTIN, TX 78701			ARNOLD, ERNST V	
			ART UNIT	PAPER NUMBER
			1616	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/730,361	CLAXTON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ernst V. Arnold	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 14-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-37 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>03/24/05</u> <del>10/28/04</del> .  | 6) <input type="checkbox"/> Other: ____                                     |

5-20

## DETAILED ACTION

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-13 are drawn to a composition comprising emodin, or a derivative thereof, associated with a lipid, classified in class 514, subclass 569.
- II. Claims 13-28 are drawn to a method of preparing a composition comprising the step of admixing emodin or a derivative thereof with a lipid in a solvent, classified in class 424, subclass 450.
- III. Claims 29-37 are drawn to a method of treating cancer comprising administering to said subject a formulation comprising emodin associated with a lipid, classified in class 424, subclass 455.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product, a composition comprising emodin associated with a lipid, can be obtained by baking a rhubarb pie.

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the

Art Unit: 1616

process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed can be used as a laxative.

Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are drawn to a method of making a composition, (Group II invention) and a method of treating a patient population (Group III invention).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Groups II or III, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

To not restrict would be an undue search burden on the Examiner.

During a telephone conversation with Mark Wilson on 08/15/05 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-13. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 14-37 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. Process claims that depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims

Art Unit: 1616

and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai*, *In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. Failure to do so may result in a loss of the right to rejoinder. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Claims 1-13 are presented for examination on the merits.

### ***Specification***

The disclosure is objected to because of the following informalities: On page 8 line 7 of the disclosure, reference is made to figures B and C in Table 1 on page 10. Table 1 on page 10 does not have figures B and C.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 1616

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Tween is a manufacturer trademark for a chemical compound. The manufacturer can develop new 'Tweens' which might have a different chemical identity. It is suggested that a specific tween be chosen.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear to the Examiner the metes and bounds of a solubilizing agent that is a  $\beta$ -hydroxylated compound. The Examiner understands the structural motif of a compound that has been  $\beta$ -hydroxylated but cannot readily envisage the myriad number of compounds that can contain that structure to function as a solubilizing agent. It is suggested that a preferred  $\beta$ -hydroxylated compound be distinctly claimed to clarify the identity of the solubilizing agent.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6-8 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Grollier et al. (U.S. Patent No. 4,481,185).

Instant claim 1 is drawn to a composition comprising emodin, or a derivative thereof, associated with a lipid.

Grollier et al. claim a cosmetic emulsion comprising a water phase, an oil phase, 3 to 30% of a lecithin emulsifier and aloe juice, which contains various anthracene compounds including aloe-emodin (See: claims 1 and 5; column 3, lines 44-52; and example 9, column 7, lines 20-29). Mixing of aloe juice with a lecithin meets the limitations of instant claim 1. Grollier et al. claim soya lecithins and egg lecithins as emulsifying agents (Claim 2) and point out soya oil for the oil phase of the emulsion (Claim 6). The Examiner interprets soya oil as a solubilization agent thus meeting the limitations of instant claims 6 and 12. Lecithins are non-ionic detergents thus reading on instant claims 7 and 8.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



Claims 2, 3, 9, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grollier et al. in view of Alving et al. (U.S. Patent No. 5,820,880).

Grollier et al. disclose a composition comprised of emodin associated with a lipid.

Grollier et al. do not expressly teach the addition of the non-ionic detergent tween 20 to a lipid composition comprising dimyristoyl phosphatidylcholine and dimyristoyl phosphatidyl glycerol.

Alving et al. disclose liposomal formulations with a non-ionic detergent that functions as a stabilizing agent (Abstract). Alving et al. disclose that preferred non-ionic detergents for inclusion in the liposomal preparations include Tween 20 in the range of about 0.5-4 mole % (Column 3, lines 4-7 and claims 1, 2 and 8). Alving et al. also disclose that dimyristoyl phosphatidylcholine and dimyristoyl phosphatidyl glycerol are components of the liposomal formulation (Claim 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the emodin-lipid composition of Grollier et al. by using the suggested lipids dimyristoyl phosphatidylcholine and dimyristoyl phosphatidyl glycerol with Tween 20 as a stabilizing agent of Alving et al. to produce the instant invention. The optimization of the amount of non-ionic detergent (e.g., using about 0.08 weight percent) is well within the purview of one of ordinary skill in the art.

One of ordinary skill in the art would have been motivated to do this because Alving et al. demonstrate enhanced liposomal stabilization in the presence of alum-based adjuvants when formulated with a non-ionic detergent.

One of ordinary skill in the art would have had a reasonable expectation of success based upon the combined teachings of the references. Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly disclosed or suggested by the combined teachings of the cited references.

***Claim Rejections - 35 USC § 103***

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grollier et al. in view of Boch et al. (U.S. Patent Application Publication No. 2002/0156062).

The reference of Grollier et al. has been described in detail above and that discussion is hereby incorporated by reference.

Grollier et al. do not expressly teach a lipid composition comprising dimyristoyl phosphatidylcholine and dimyristoyl phosphatidyl glycerol and emodin in a weight/weight ration of lipid to emodin of about 5:1 to 30:1 or about 5:2.

Boch et al. disclose compositions comprised of microaggregates containing hydrophobic drugs (Abstract). Emodin is disclosed as an exemplary hydrophobic drug (Page 8, [0047]). Boch et al. disclose that the composition can comprise dimyristoyl phosphatidylcholine (DMPC) and dimyristoyl phosphatidyl glycerol (DMPG) (Pages 11-12, [0066] and [0070]). Boch et al. disclose that total lipid:hydrophobic agent ratios may

be from about 7:1 and higher although lower ratios also do not exhibit adverse effects (Page 11, [0067] and claims 1, 5 and 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the emodin-lipid composition of Grollier et al. by using the suggested lipids dimyristoyl phosphatidylcholine and dimyristoyl phosphatidyl glycerol in the range of about 7:1 (lipid:emodin) and higher et al. to produce the instant invention.

One of ordinary skill in the art would have been motivated to do this because Boch et al. disclose that appropriately selected lipids can form microaggregates that have improved filterability which is important in producing large quantities of the delivery vehicles (Pages 2-3, [0018]).

The Examiner interprets that one of ordinary skill in the art would have taken the suggestion of Boch et al. (that lower ratios of lipid:emodin do not adversely effect the composition) to have optimized the ratio of components and would have tried lower ratios, such as 5:2, in efforts to save on materials.

One of ordinary skill in the art would have had a reasonable expectation of success based upon the combined teachings of the references. Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly disclosed or suggested by the combined teachings of the cited references.

***Conclusion***


Claims 1-13 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernst V. Arnold whose telephone number is 571-272-8509. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on 571-272-0887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EVA

  
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GROUP 1620